

WHAT IS CLAIMED IS:

1. A coolant additive composition comprising:
a matrix material and an additive component, the
additive component being located in the matrix material and
5 effective, when released into a coolant, to provide at
least one benefit to the coolant,

the matrix material is effective to reduce the
rate of release of the additive component into the coolant
relative to an identical composition without the matrix
10 material.

2. The additive composition of claim 1 wherein the
matrix material comprises at least one polymeric material.

3. The additive composition of claim 1 wherein the
matrix material is substantially insoluble in the coolant
or is partially soluble in the coolant.

4. The additive composition of claim 2 wherein the
matrix material includes a portion which is soluble in the
coolant and is effective, when released into the coolant,
to provide at least one benefit to the coolant.

5. The additive composition of claim 1 wherein the
additive component comprises at least one active ingredient
selected from the group consisting of microbiocides,
buffers, cavitation liner pitting inhibitors, metal
corrosion inhibitors, hot surface corrosion inhibitors,
defoaming agents, hot surface deposition inhibitors, scale
inhibitors, detergents, dispersants, surfactants and
mixtures thereof.

6. The additive composition of claim 1 wherein the

matrix material is initially a solid in the composition or initially a gel in the composition.

7. The additive composition of claim 2 wherein the polymeric material includes polymer-repeating units derived from an olefin component having 2 to about 12 carbon atoms per molecule.

8. The additive composition of claim 7 wherein the olefin component is selected from a group consisting of ethylene, propylene and mixtures thereof.

9. The additive composition of claim 7 wherein the olefin component is ethylene.

10. The additive composition of claim 2 wherein the polymeric material comprises a copolymer of ethylene and vinyl acetate.

11. The additive composition of claim 2 wherein the polymeric material is at least partially oxidized.

12. The additive composition of claim 2 wherein the polymeric material is an oxidized polyethylene wax.

13. The additive composition of claim 1 wherein the matrix material includes an aliphatic acid component.

14. The additive composition of claim 1 wherein the composition has more than one layer, each layer comprises a different mixture of the additive component and the matrix material.

15. The additive composition of claim 1 further comprising a coating material surrounding at least a

portion of the additive material and the matrix material,
the coating material being present in an amount effective
5 to reduce the rate of release of the additive component
into the coolant relative to an identical additive
composition without the coating material.

16. The additive composition of claim 15 wherein the
coating material comprises a coating polymeric material.

17. The additive composition of claim 16 wherein the
coating polymeric material comprises polyethylene vinyl
acetate.

18. The additive composition of claim 15 wherein the
coating material is substantially insoluble in the coolant
or partially soluble in the coolant.

19. The additive composition of claim 18 wherein the
coating material includes a portion which is soluble in the
coolant and is effective when released into the coolant,
to provide at least one benefit to the coolant.

20. The additive composition of claim 1 wherein the
composition further comprises a release enhancer component
in an amount effective to increase the release rate of the
additive component from the composition relative to an
5 identical composition without the release enhancer
component.

21. The additive composition of claim 1 wherein the
composition further comprises a reinforcement component in
an amount effective to increase the structural strength of
the composition relative to an identical composition
without the reinforcement component.

22. A coolant additive composition comprising:
a sustained release component and an additive component, the additive component is effective to provide at least one benefit to a coolant when released into the coolant,

the sustained release component is partially soluble in the coolant and is effective to reduce the rate of release of the additive component into the coolant relative to an identical composition without the sustained release component.

23. The additive composition of claim 22 wherein the sustained release component includes a portion which is soluble in the coolant and is effective, when released into the coolant, to provide at least one benefit to the coolant.

24. The additive composition of claim 22 wherein the sustained release component includes at least one of a matrix and a coating.

25. The additive composition of claim 22 wherein the sustained release component includes both a matrix and a coating.

26. The additive composition of claim 22 wherein the sustained release component comprises at least one polymeric material.

27. A method of producing an additive composition for providing a benefit to a coolant, comprising the steps of:
combining an additive component with a matrix material to form a mixture, the additive component being effective to provide at least one benefit to a coolant when released into the coolant, the matrix material comprising

a polymeric material, and

10 forming one or more discrete units of the mixture, the matrix material being present in an amount effective, when the one or more discrete units are contacted with a coolant, to reduce the rate of release of the additive component into the coolant.

28. The method of claim 27 wherein the one or more discrete units provide a reduced rate of release of the additive component into a coolant relative to an identical one or more units without the matrix material.

29. The method of claim 27 which further comprises providing a coating material on the one or more discrete units, the coating material being effective to reduce the rate of release of the additive component into a coolant relative to an identical one or more units without the provided coating material.

30. The method of claim 29 wherein the matrix material in the one or more discrete units is substantially coolant insoluble or partially coolant soluble.

31. A method of producing an additive composition for providing a benefit to a coolant comprising the steps of:
providing an additive composition including at least one additive effective, when released into a coolant, to provide a benefit to the coolant; and

providing a coating material on the additive composition to form a coated additive composition, the coating material being partially coolant soluble and effective, when the coated additive composition is contacted with a coolant, to reduce the rate of release of the additive composition into a coolant relative to an identical additive composition without the coating

material.

32. The method of claim 31 wherein the coating material includes a portion which is soluble in a coolant and is effective, when released into the coolant, to provide at least one benefit to the coolant.

33. An additive assembly comprising:
a housing including a coolant inlet and a coolant outlet; and

5 an additive composition disposed within the housing and including an additive component and a matrix material, the additive component being located in the matrix material and effective, when released into a coolant, to provide at least one benefit to the coolant, the matrix material is effective to reduce the rate of release of the additive component into the coolant relative to an identical additive composition without the matrix material.

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34. The additive assembly of claim 33 wherein the matrix material comprises a polymeric material and is substantially coolant insoluble or is partially coolant soluble.

35. The additive assembly of claim 33 wherein a portion of the matrix material is soluble in a coolant and is effective, when released into the coolant, to provide a benefit to the coolant.

36. The additive assembly of claim 33 further comprising a coating material surrounding at least a portion of the additive component and the matrix material, the coating material being in an amount effective to reduce
5 the rate of release of the additive component into a

coolant relative to an identical additive composition without the coating material.

37. The additive assembly of claim 36 wherein the coating material is substantially coolant insoluble.

38. The additive assembly of claim 36 wherein a portion of at least one of the matrix material and the coating material is coolant soluble and is effective, when released into the coolant, to provide a benefit to the coolant.

39. An additive assembly comprising:
a housing including a coolant inlet and a coolant outlet; and

an additive composition disposed within the housing and including a sustained release component and an additive component effective, when released into a coolant, to provide at least one benefit to the coolant, the sustained release component is partially soluble in the coolant and is effective to reduce the rate of release of the additive component into the coolant relative to an identical additive composition without the sustained release component.

40. The additive assembly of claim 39 wherein the sustained release component includes a portion which is coolant soluble and is effective, when released into the coolant, to provide at least one benefit to the coolant.

41. The additive assembly of claim 39 wherein the sustained release component comprises a coating on the additive component.

42. A method for releasing an additive into a coolant

comprising contacting the additive composition of claim 1 with a coolant.

43. A method for releasing an additive into a coolant comprising contacting the additive composition of claim 22 with a coolant.

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